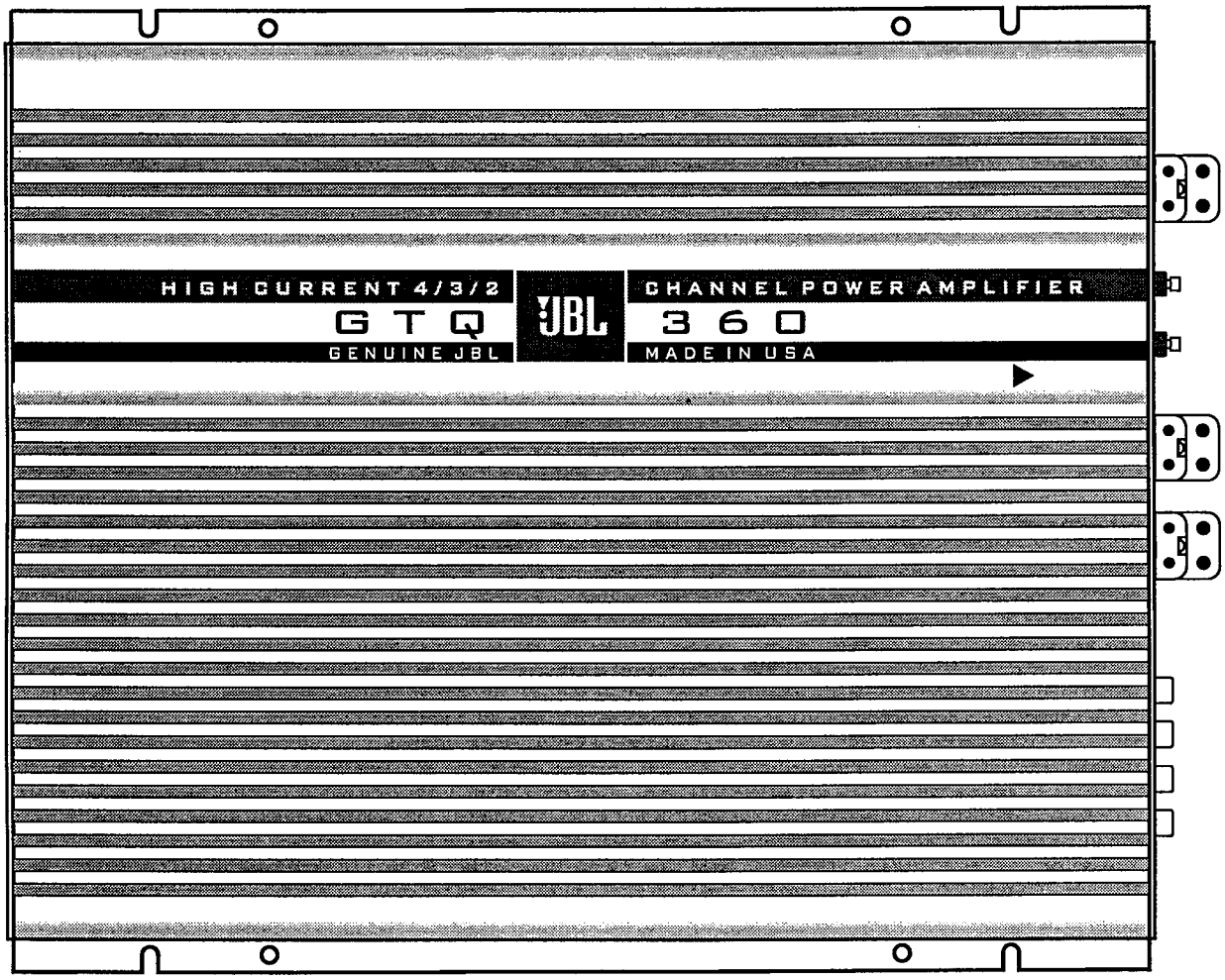
GTQ360

4/3/2 CHANNEL AUTOMOTIVE POWER AMPLIFIER

TECHNICAL MANUAL



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H A Harman International Company

Part No.: 1112-GTQ360 Rev A

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SPECIFICATIONS

Number of Channels	4, 3, 2
4 Ohms Stereo	60W x 4
2 Ohms Stereo	120W x 4
4 Ohms Bridged	180W x 2
T.H.D. @ 4 Ohms rated power	0.05%
Frequency Response	10Hz - 40kHz (+0, -1db)
Signal to Noise Ratio	100dBA
Slew Rate	10V/us
Channel Separation (dB)	>65dB
Damping Factor	>200
Crossover Slope	18dB
Fuse Size	30Amp 32Volt ATC Type Fuse (2 per amplifer)
External Dimensions (Inches)	
Length	17-5/8"
Width	10"
Depth	2"
External Dimensions (mms)	
Length	447 mm
Width	245 mm
Depth	51 mm
Weight	13.5lbs (6.1kg)

JBL continually strives to improve its products. New materials, production methods and design refinements are introduced into existing models without notice as a routine expression of our design philosophy. For this reason, GTQ Series Multichannel Automotive Amplifiers may differ in some respect from their published specifications and descriptions, but will always equal or exceed the original specifications unless otherwise stated.

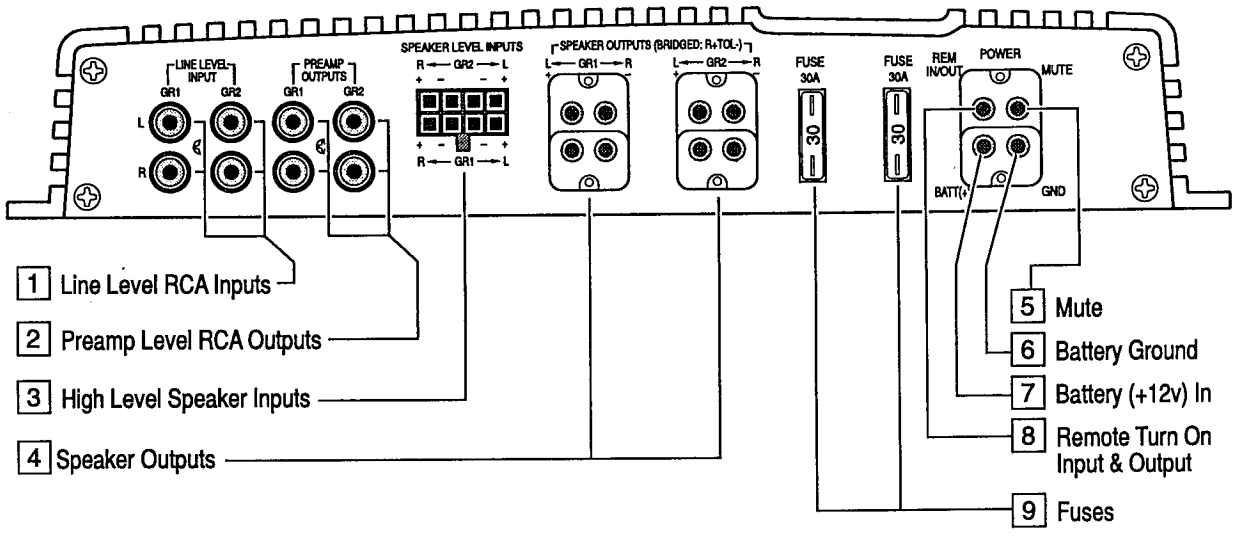
Features

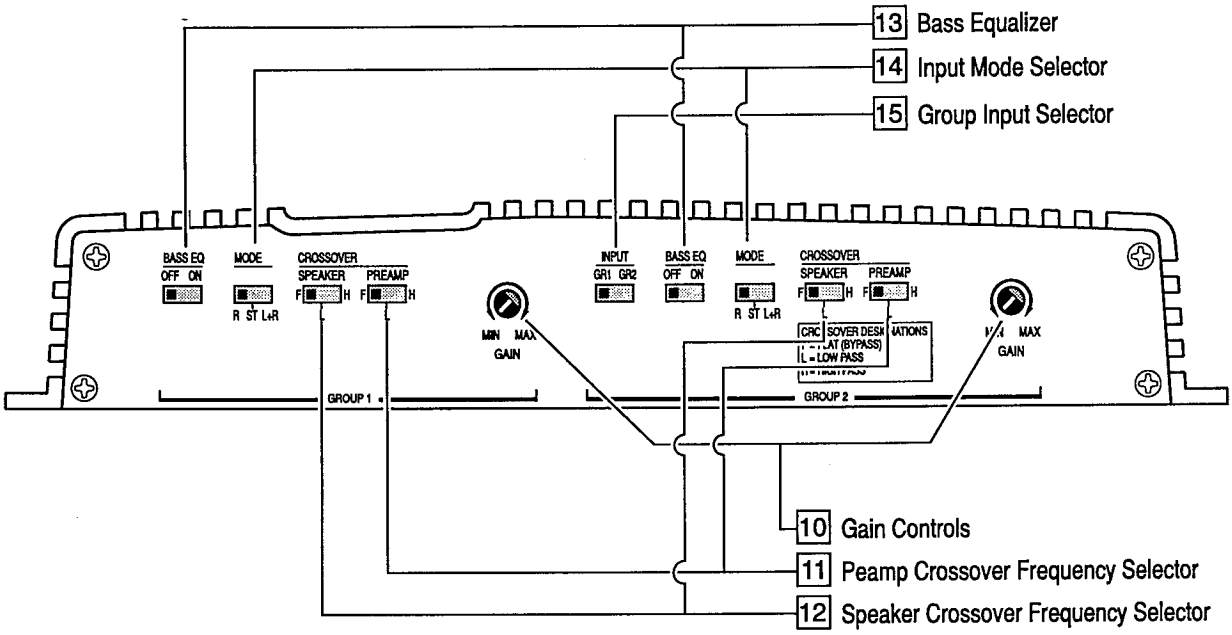
- 4, 3 or 2-Channel Operation.
- Simultaneous Stereo + Mono Operation.
- Advanced MOSFET Oversized Floating Rail Power Supply (2 in the GTQ360).
- Discrete Darlington Output Array.
- High Current Low Impedance Design.
- Universal Interface™
- Common-Sense Turn-On (no remote wire needed when using Universal Interface).
- Full Programmable 18dB per Octave Crossover (Low-Pass, High-Pass, Thru Pass).
- Preamp Output for System Building.
- Crossovers on Preamp Outputs for the ultimate system building.
- Multiple Head unit Ready.
- Switchable Bass Boost.
- Remote out for turning on all the gear in the trunk.
- JBL's Proprietary Gold Plated Input and Output Connectors.
- Continuously Adjustable gain Controls.
- Bridgeable.
- Switchable Hi-Level Input Sensitivity.

Test Conditions and Notes

- Power testing is completed using 4 Ohm, 250 Watt resistors (such as the Dale RH-250 250W, 4 ohm, 1% resistor).
- The distortion meter, scopes, and any other test equipment used to test the amplifier should be ground isolated to prevent ground loop noise problems.
- In some situations, it may be necessary to connect the ground of the distortion meter to the RCA ground terminal on the amplifier in order to prevent ground noise problems and obtain the correct THD measurements.
- Signal to Noise ratio is measured versus the rated power into 4 ohms using an A weighted meter with the gain control set to the minimum position.
- Frequency response measurements can be taken at 1 watt or rated power. Reference levels should be established at 1 kHz with all crossovers in the "flat" or "off" position.
- Crossover frequency measurements should be taken at 1 watt output for the speaker outputs and 0.5 V output on the preamp outputs. The specification is taken relative to the 40 Hz output on the Low Pass filter and relative to the 1 kHz output on the high pass filter. Right and Left channel reference levels should be reestablished for each measurement.

Controls and Connections





Controls and Connections

1. Preamp-Level Input Connector - Use these connectors for line (preamp) level inputs to the amplifier.

2. Preamp-Level Output Connector - Use these outputs to send the signal to additional amplifiers.

3. Speaker-Level Input Connector - Use this connector for speaker level input signals. A wire harness is supplied for use with this connector. See "Typical System Configuration" section (page 6) for wiring instructions. This input also includes JBL's Common Sense input circuitry which turns the amplifier on as soon as the high powered head unit connected to this input is turned on.

4. Speaker Output Connector - Connect speaker wiring to these connectors. See wiring instructions on Page 6 for more information.

5. Mute - Accepts Standard Noise Gate Input (+5 to +12 volts) to silence the Amp during no music conditions.

6., 7., 8., Power Connector - Connection for power wires. See wiring instructions on Page 6 for more information.

9. Fuses - Two 30 Amp ATC type fuses.

10. Gain Controls - Use these controls to adjust the gain of the amplifier channel group.

11. Preamp Crossover Switches - These switches control the built-in crossovers that are directed to the preamp-output connectors. Set the switch to F (flat) for

full band operation for that group. Set the switch to L (low) to activate the low-pass filter on the preamp output group for subwoofer use, or to use in conjunction with a high-pass filtered input signal to create a bandpass crossover for a midrange or midbass driver. Set the switch to H (high) to activate the high-pass filter for use with external amplifiers driving satellite speakers or tweeters from the preamp output group.

12. Speaker Crossover Switches - These switches control the built-in crossovers that are connected to each group's power amplifier circuitry. Set the switch to F (flat) for full band operation on a group. Set this switch to L (low) to activate the low pass filter on the selected amplifier for subwoofer use in conjunction with a high-pass filtered input signal to create a bandpass crossover (for a midrange or midbass driver). Set the switch to H (high) to activate the high-pass filter for use with satellite speakers or tweeters on an amplifier group.

13. Bass EQ Switch - These switches activate a built-in Bass Boost circuit used to increase low-bass output on the selected speaker output group. These switches do not effect the preamp outputs.

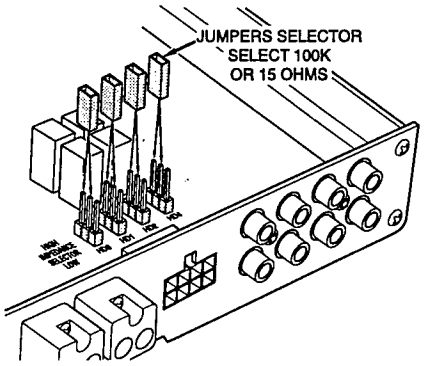
14. Mode Switches - These switches are used to set the input mode for both preamp and speaker-level inputs (to drive speaker output groups). Set the switch to Stereo for normal operation on the group using individual left and right inputs. Set this switch to L to drive both the left and right outputs with only a single input on the left jack. Set the switch to "L+R" to sum the left and right inputs for a mono output on the group. These switches do not affect the preamp outputs. **Note**: L+R and L settings bypass the imaging enhancer.

15. Group 2 Input Switch - This switch is used to select which inputs will drive Group 2 of the amplifier. Put the switch in position "GR 1" to allow Group 2 to be driven by the Group 1 inputs. Put the switch in the "GR 2" position to drive Group 2 with the Group 2 inputs.

Power Indicator LED (on amp chassis top) - LED steadily illuminates for normal operation. LED blinks when protection circuitry is engaged, and during power-up.

Speaker-Level Input Impedance Adjustments

The speaker level inputs of the GTQ360 come factory set with 100k ohm input impedance. This will provide the lowest distortion operation from the speaker outputs of most modern head units by reducing the power the amplifier in the head unit must deliver to practically nothing. The resulting signal will practically be as free from noise and distortion as a preamp-level connection. On some older, or lower-priced head units, this load will not facilitate proper fader operation. To allow for this, we have provided the ability to change the input impedance of the speaker-level inputs to 15 ohms.



This is accomplished by moving the jumpers shown on the above diagram. This input is also capable of directly accepting signals, when in the 100k ohm setting, from many Balanced Line Drivers such as those sometimes used in competition vehicles. For best results, a Balanced Line Driver capable of at least 4V nominal output should be used.

If the head unit has 4 channels of built-in amplification and/or an electronic fader control, you should leave the jumpers in the factory set position.

If the head unit has 2 channels of amplification, With a speaker-level fader, the jumpers should be set to the 15-ohm position. This will always be a rotary-type control, not one controlled by electronic pushbuttons.

If you are not certain of the type of fader control your unit has, measure the resistance across one set of speaker outputs with an ohmmeter (with the head-unit off). Adjust the fader control through its entire adjustment range. If there is a change in the resistance as the control is adjusted, set the jumpers to the 15ohm position.

Crossover Frequency Adjustments

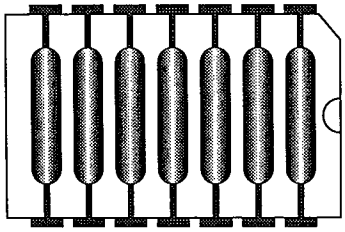
The GTQ360 amplifiers include built-in frequency selectable crossovers. One crossover is connected in series with the amplifier circuitry and the other crossover is connected to the preamp level output jacks. These crossovers can be set in either the F (full bandwidth operation), L (subwoofer operation), or H (satellite operation).

The crossover frequencies are set by chips inside the amplifier. These chips are simply a set of resistors, connected across the pins and molded into a single package. The crossover frequencies may be changed to any value desired by changing the resistor network. JBL has chips available in the popular values listed in the table below. If none of these suit your system, you may purchase compatible resistor networks from a local electronics store, or you may build your own custom values from discrete resistors mounted on a 14-pin DIP Header using the instructions which follow.

Frequency	Resistor Value	JBL Part Number
50Hz	47K Ω	1-23-750
80Hz	33KΩ	1-23-817
120Hz	22K Ω	1-23-820
200Hz	12K Ω	1-23-821
250Hz	10K Ω	1-23-810
375Hz	6.8K Ω	1-23-822
500Hz	4.7K Ω	1-23-815
650Hz	3.9K Ω	1-23-823
2.5Hz	1K Ω	1-23-824
5kHz	470 Ω	1-23-816

Custom Chip Construction

Regardless of whether you build or buy it, the necessary resistor network has the following configuration:



- Each resistor in the package has the same value.
- If you know the crossover frequency you want, you can calculate the resistor value necessary by solving the following equation:

$$\text{Resistor Value in Ohms} = \frac{2{,}500{,}000}{\text{Frequency in Hz}}$$

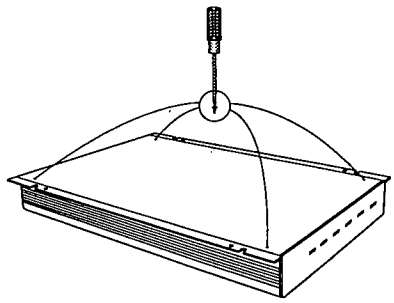
Use the following equation if you have a resistor pack of a known value, and want to find its crossover frequency:

To build chips from discrete resistors, solder the resistors to a standard 14-pin "DIP Header" according to the diagram. If a DIP Header is not available, you may bend the leads of 1/4-watt resistors 90 degrees, trim them to 1/8"-length, and insert them directly into the chip sockets.

To change the crossover frequency change the resistor network as follows:

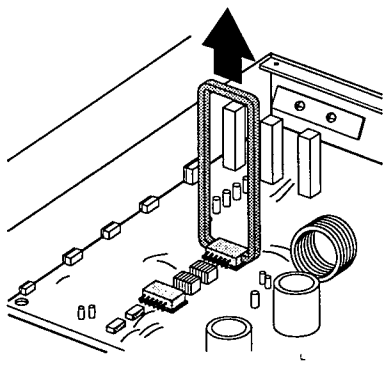
$$\text{Frequency in Hz} = \frac{2{,}500{,}000}{\text{Resistor Value in Ohms}}$$

1. Remove the screws from the bottom panel as shown in the following illustration.



2. Select which resistor module, high pass or low pass, that you wish to change.

3. A chip puller, which can be obtained from any electronics store, is recommended to remove the resistor chip. Pull the resistor chip from the socket as shown in the following figure.



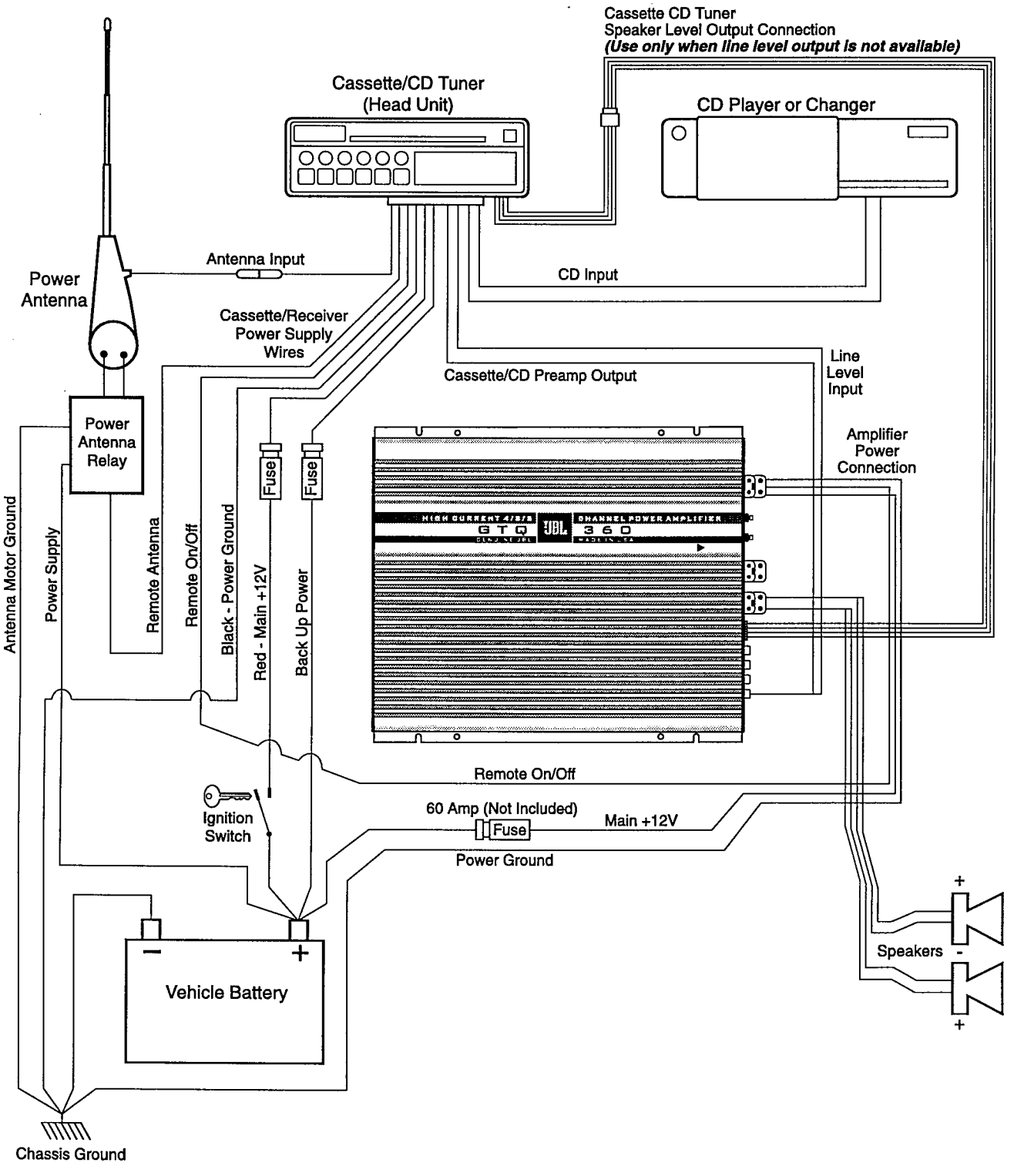
4. Place the new module in the socket making sure all pins are lined up with the socket holes. Press the module firmly into the socket.

5. Replace the bottom lid.

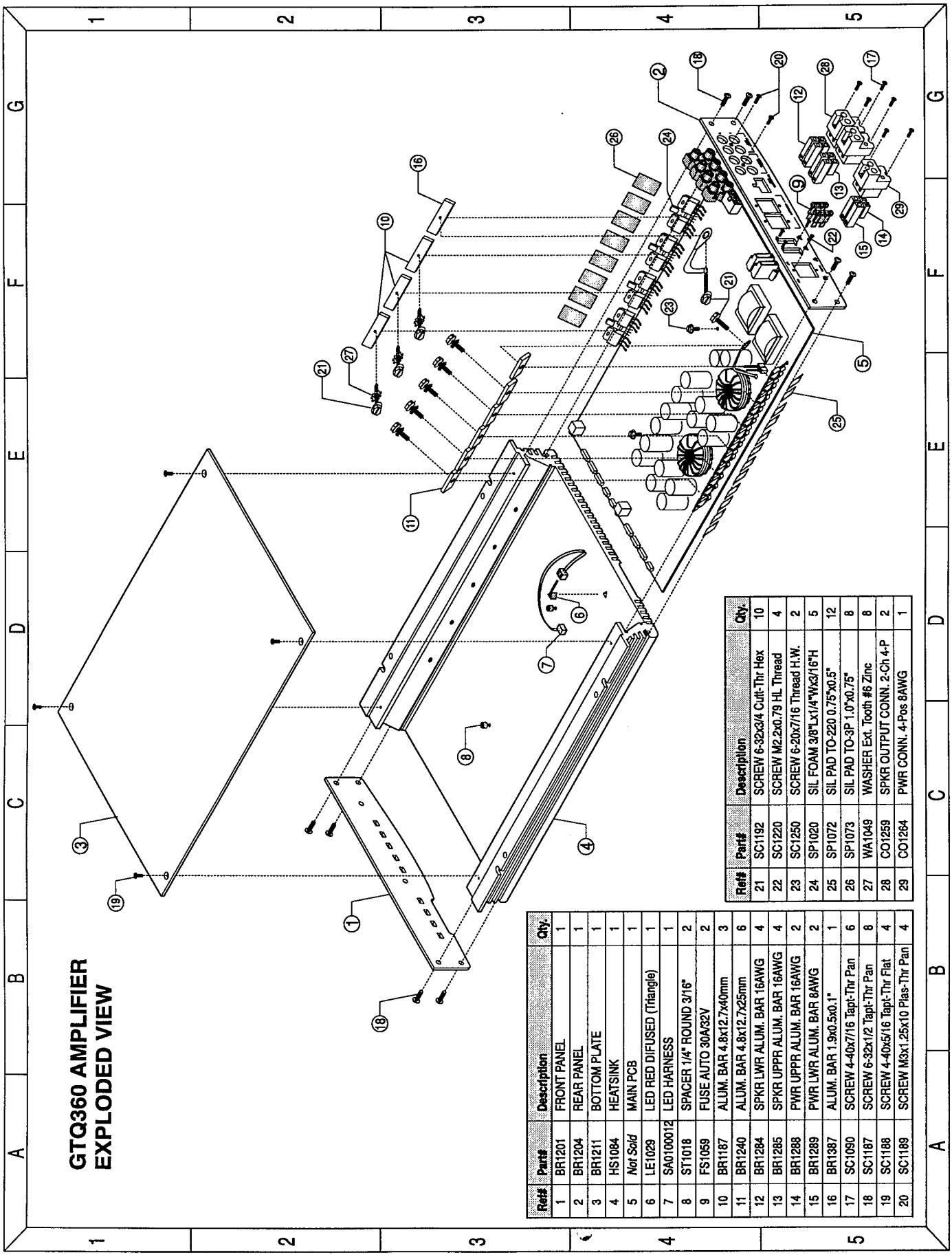
Mounting Positions

Place the amplifier in the installation location. Use a pen or pencil to mark the mounting screw hole locations. Set the amplifier aside and drill the holes for the mounting screws. (Note: If the surface you are mounting the amp to is covered with carpeting or upholstery, cut a small "x" in the material at each screw hole location before drilling the holes. This will help prevent tearing or stretching of the material and carpet fibers from being pulled out.) Set the amplifier in position and align the holes on its side with the holes previously drilled. Put washers on the sheet metal screws provided and drive them into the mounting panel. Tighten the screws evenly until the unit is solidly mounted.

Typical System Configuration



GTQ360 Mechanical Exploded View



Ref#	Part#	Description	Qty.
1	BR1201	FRONT PANEL	1
2	BR1204	REAR PANEL	1
3	BR1211	BOTTOM PLATE	1
4	HS1084	HEATSINK	1
5	*Not Sold*	MAIN PCB	1
6	LE1029	LED RED DIFUSED (Triangle)	1
7	SA0100012	LED HARNESS	1
8	ST1018	SPACER 1/4" ROUND 3/16"	2
9	FS1059	FUSE AUTO 30A/32V	2
10	BR1187	ALUM. BAR 4.8x12.7x40mm	3
11	BR1240	ALUM. BAR 4.8x12.7x25mm	6
12	BR1284	SPKR LWR ALUM. BAR 16AWG	4
13	BR1285	SPKR UPPR ALUM. BAR 16AWG	4
14	BR1288	PWR UPPR ALUM. BAR 16AWG	2
15	BR1289	PWR LWR ALUM. BAR 8AWG	2
16	BR1387	ALUM. BAR 1.9x0.5x0.1"	1
17	SC1090	SCREW 4-40x7/16 Tapt-Thr Pan	6
18	SC1187	SCREW 6-32x1/2 Tapt-Thr Pan	8
19	SC1188	SCREW 4-40x5/16 Tapt-Thr Flat	4
20	SC1189	SCREW M3x1.25x10 Plas-Thr Pan	4

Ref#	Part#	Description	Qty.
21	SC1192	SCREW 6-32x3/4 Cutt-Thr Hex	10
22	SC1220	SCREW M2.2x0.79 HL Thread	4
23	SC1250	SCREW 6-20x7/16 Thread H.W.	2
24	SP1020	SIL FOAM 3/8"Lx1/4"Wx3/16"H	5
25	SP1072	SIL PAD TO-220 0.75"x0.5"	12
26	SP1073	SIL PAD TO-3P 1.0"x0.75"	8
27	WA1049	WASHER Ext. Tooth #6 Zinc	8
28	CO1259	SPKR OUTPUT CONN. 2-Ch 4-P	2
29	CO1264	PWR CONN. 4-Pos 8AWG	1

GTQ360 Parts List

Main PCB, Preamp, Crossover, Power Supply and Power Amplifier

Transistors

REF. NO.	PART NO.	DESCRIPTION	QTY
Q1, 13, 14	TR1131	SMD XSTR NPN DTC114TK	3
Q1A, 1B, 1C, 1D, 120	TR1183	NPN PWR XSTR TIP31C T	5
Q2	TR1135	PNP XSTR RXT2907A SOT-89	1
Q2A, 2B, 2C, 2D	TR1255	NPN PWR XSTR TIP35C TO-2	4
Q3, 5, 112, 113, 114	TR1108	SMD XSTR NPN 2SC2412K CP	5
Q3A, 3B, 3C, 3D, 119	TR1184	PNP PWR XSTR TIP32C T	5
Q4, 6, 116	TR1125	SMD XSTR PNP 2SA1037K CP	3
Q4A, 4B 4C, 4D	TR1256	PNP PWR XSTR TIP36C TO-2	4
Q5A, 5B, 5C, 5D, 109, 110	TR1063	NPN XSTR MPS2222A TO-92 T	6
Q6A, 6B, 6C, 6D	TR1209	SMD XSTR 2SC3906K SOT23/SM	4
Q100-107	TR1157	FET PWR IRFZ44	8
Q111, 108	TR1010	PNP XSTR MPS2907A TO-92 T	2

Capacitors

C1, 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3E, 3G, 4E, 4G, 9, 16, 16G, 17, 17G, 18, 19, 21, 22, 30, 30G, 31, 31G, 37, 38, 39, 40, 92, 121, 122, 130A, 131A	CP1426	SMD 0.1µF 20% 50V Z5U	35
C1E, 1G, 3, 4, 5, 5G, 6, 19E, 19G, 20, 20G, 33, 34, 35, 36	CP1352	ALUM. ELECT. 22µF 20% 25V	15
C2	CP1427	SMD 10nF 20% 50V Z5U	1
C3A, 3B, 3C, 3D	CP1539	POLY FILM 0.047µP 5% 63V	4
C4A, 4B, 5C, 5D, 47, 104, 105	CP1415	ALUM. ELECT. 2.2uF 20% 50V	
C7, 8	CP1547	ALUM. ELECT. 100µF 20% 35V	2
C10	CP1562	ALUM. ELECT. 330µF 20% 16V	1
C10A, 10G, 13, 13G, 23, 23G, 26, 26G	CP1535	POLY FILM 0.082µF 5% 63V	8
C11, 11G, 15, 15G, 24, 24G, 28, 28G	CP1177	POLY FILM 0.22µF 5% 63V	8
C12, 12G, 25, 25G	CP1573	POLY FILM 0.012µF 5% 63V	4
C14, 14G, 27, 27G	CP1178	POLY FILM 22nF 5% 63V	4
C19, 19A	CP1552	SMD 0.1µF 20% 100V Z5U	2
C29, 29G, 32, 32B	CP1445	SMD 47nF 10% 100V x7r	4
C76, 76G, 99, 99G	CP1542	SMD 10pF 5% 50V NPO	4
C97, 97G, 98, 98G	CP1496	SMD 100pF 10% 50V x7r	4
C101, 101A	CP1126	POLY FILM 1µF 19% 50V	2
C102, 102A, 103, 103A	CP1355	ALUM. ELECT. 2200µF 20% 25	4
C108-119	CP1624	ALUM. ELECT. 2200µF 20% 35V	12
C137	CP1411	ALUM. ELECT. 100µF 20% 16V	1

Diodes

D1, 1A, 1B, 1C, 1D, 2, 2A, 2B, 2C, 2D, 3, 4B, 5	DI1132	SMD SWCH 1N4148	13
D7, 7A, 8, 8A	DI1005	1N5401 3A/200V	4
D9, 10	DI1053	RECT. DUAL FEP16BT 16A	2
D11, 12	DI1054	RECT. DUAL FEN16BT 16A	2
D13, 14, 15, 16	DI1010	UF44002 RECT. 1A/100V A PI	4
Q115	TY1000	SCR TO92 MCR22-2 T/R	1
Z1, 2	DI1150	SMD ZENER 15V 5% CP PKG	2
Z3	DI1167	SMD ZENER 16V 5% CP PKG	1

Integrated Circuits

IC2	IC1162	TL074 QUAD OP-AMP, SMD	1
IC2A, 2G	IC1175	NE5532 DUAL L	2
IC3, 3G, 4, 4G, 5, 5B, 8, 8G, 9, 9G	IC1041	TL072 DUAL OP-AMP	10

Resistors

J1, 1A, 1G, 2, 2E, 2G, 3	RS1779	SMD ZERO Ω JUMPER 12 PI	7
R1A, 1B, 1C, 1D, 5A, 5B, 5C, 5D	RS1916	C/F 5.1Ω 5% 1/4W T/ P	8
R1E, 1G, 3, 4, 9, 10, 19, 19G, 24, 43, 98, 126, 129	RS1700	SMD 1KΩ 5% 1/8W 12 P	13

REF. NO.	PART NO.	DESCRIPTION	QTY
R2	RS1539	C/F 470Ω 5% 1/2W T/ P	1
R2A, 2B, 2C, 2D	RS1831	SMD 7.5KΩ 5% 1/8W T/ P	4
R3A, 3B, 3C, 3D	RS1877	SMD 4.3KΩ 5% 1/8W 12 P	4
R4A, 4B, 4C, 4D	RS1902	C/F 33Ω 5% 1/4W T/R P	4
R4E, 4G, 21, 40G, 21G, 11, 11G, 28, 28G, 28B, 28C, 28D, 28E, 36, 36G, 40	RS1704	SMD 22KΩ 5% 1/8W 120 PI	16
R5, 5G, 18, 22, 22G, 26	RS1703	SMD 2.2KΩ 5% 1/8W 12 PI	7
R6, 8, 8A, 8B, 8C, 8D, 17, 17G, 20, 23, 23A, 23B, 23C, 23D, 32, 32E, 32G, 42, 44, 130, 138	RS1701	SMD 10KΩ 5% 1/8W 120 PI	21
R6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D	RS1868	W/W 0.1Ω 5% 5W RAD	8
R7, 13, 41, 112, 1	RS1702	SMD 100KΩ 5% 1/8W 12 PI	5
R9A,9B, 9C, 9D, 33, 115	RS1705	SMD 4.7KΩ 5% 1/8W 12 PI	6
R10A, 10B, 10C, 10D	RS1878	SMD 10W 5% 1/8W 120P	4
R12, 12G, 29, 29G	RS1726	SMD 270KΩ 5% 1/8W120 P	4
R13A, 13B, 13C, 13D	RS1869	W/W 15Ω 5% 5W RAD	4
R14, 14G, 31, 31G	RS1713	SMD 56KΩ 5% 1/8W 120 P	4
R14A, 14B, 14C, 14D	RS1731	SMD 330Ω 5% 1/8W 12P	4
R15, 15G, 16, 16G	RS1830	SMD 200Ω 5% 1/8W 12 P	4
R25	RS1891	SMD 220KΩ 5% 1/8W 12 P	1
R32A, 32B, 32C, 32D, 33A, 33B, 33C, 33D, 34A, 34B, 34C, 34D, 35A, 35B, 35C, 35D	RS1872	SMD 51KΩ 5% 1/8W 120 P	16
R34, 34G, 35, 35G, 37, 37B, 38, 38G, 39, 39B	RS1712	SMD 43KΩ 5% 1/8W 120 P	10
R56, 56G, 57, 57G, 147, 147G, 148, 148G	RS1968	SMD 2.2MΩ 5% 1/8W 12 P	8
R116-122, 124	RS1717	SMD 100Ω 5% 1/8W 12 PI	8
R123, 125	RS1722	SMD 470Ω 5% 1/8W 12 P	2
R127, 128	RS1730	SMD 270KΩ 5% 1/8W 12P	2
VR1, VR1G	RS1227	POT. 100KΩ DUAL CTR. DET	2
Miscellaneous			
BB1	BR1265	BUS BAR 5.33"	1
CONN1	CO1270	HDR. RIGHT ANGLE 8-POS 2-RR	1
F1, 2	FS1059	FUSE AUTO 30A/32V	2
F1, 2	FH1001	FUSE HOLDER RIGHT ANGLE	2
FB1-9, 13, 17, 18	CC1028	FERRITE BEAD	14
L1, 6	SA0100021	INPUT INDUCTOR 300uH	2
L1A, 1B, 1C, 1D	SA0000012	AIR CORE INDUCTOR 0.38uH	4
LED1	CO1304	HEADER STRAIGHT 2-POS 0.1"	1
RCA1, 2	CO1271	RCA JACK QUAD, GOLD	2
RN1, 1G, 2, 2G	CO1277	CONNECTOR IC SOCKET 14 -PIN	4
RN1, 1G, 2, 2G	LB1231	LABEL CROSSOVER NETWORK 80	4
SW3, 3B, 1, 1G, 2, 2G	SW1013	SWITCH 2P3T HORIZONTAL	6
SW4, 4B, 5	SW1011	SWITCH 2P2T HORIZONTAL	3
T1	SA0110421	POWER TRANSFORMER GTQ360	1
T1A	SA0110431	POWER TRANSFORMER GTQ360	1
TH1	SA0114321	THERMISTOR ASSEMBLY	1
	IM1138	SLEEVING SHRINK PVC 3/32	1.5"
	TH1006	NTC THERMISTOR 10KΩ @25	1
	WI1557	WIRE 26AW 7x34 UL1007 BLACK	27"
	MS1004	SILICONE GREASE #340 DOW (NOT STOCKED)	

GT DRIVER (4 Modules)

AMOUNTS LISTED ARE FOR EACH MODULE

REF. NO.	PART NO.	DESCRIPTION	QTY
Capacitors			
C1, 4, 5, 14	CP1496	SMD 100pF 10% 50V X7R P	4
C2, 10	CP1557	SMD 56pF 5% 50V NPO 12 P	2
C3, 13	CP1475	SMD 33pF 5% 50V NPO 12 P	2
C6	CP1411	ALUM. ELECT. 100µF 20% 16V PI	1
C7, 8, 9, 11, 12	CP1426	SMD 0.1µF 20% 50V Z5U PI	5

REF. NO.	PART NO.	DESCRIPTION	QTY
Diodes			
D1	DI1132	SMD SWCH 1N4148 T PI	1
Integrated Circuits			
IC1	IC1040	HIGH PERF. NJM318 OP AMP DIP-8	1
Resistors			
J1	RS1779	SMD ZERO Ω JUMPER 120 PI	1
R1	RS1806	SMD 18KΩ 5% 1/8W 120 PI	1
R2, 6, 10, 12	RS1701	SMD 10KΩ 5% 1/8W 120 P	4
R3, 11, 21, 22	RS1700	SMD 1KΩ 5% 1/8W 12 P	4
R4, 15	RS1702	SMD 100KΩ 5% 1/8W 120 PI	2
R5, 9	RS1829	SMD 160Ω 5% 1/8W 120 P	2
R7, 8	RE1722	SMD 470Ω 5% 1/8W 120 P	2
R13, 14	RS1703	SMD 2.2KΩ 5% 1/8 W 120 PI	2
R17, 20	RS1725	SMD 15KΩ 5% 1/8W 120 P	2
R18, 19	RS1831	SMD 7.5KΩ 5% 1/8W T/ P	2
RN1, 1G, 2, 2G	RS1900	RES. NETWORK 7-33KΩ DIP	4
Transistors			
Q1	TR1131	SMD XSTR NPN DTC114TK 10K	1
Q2	TR1167	NPN XSTR 2N5551 TO-92	1
Q3	TR1166	PNP XSTR 2N5401 TO-92	1
Q4	TR1125	SMD XSTR PNP 2SA1037K CP	1
Q5	TR1108	SMD XSTR NPN 2SC2412K CP	1
Miscellaneous			
P1, P3	CO1280	HEADER RIGHT ANGLE 4-POS	2
P2	CO1279	HEADER RIGHT ANGLE 3-POS	1

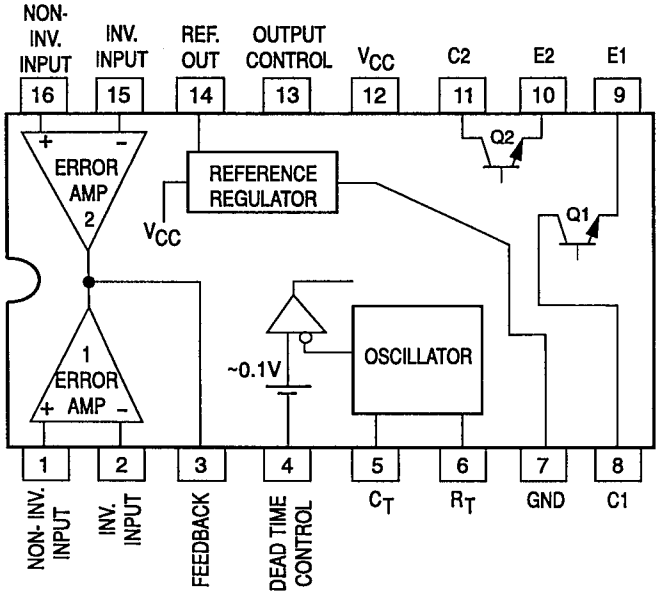
REF. NO.	PART NO.	DESCRIPTION	QTY

PWM MODULE

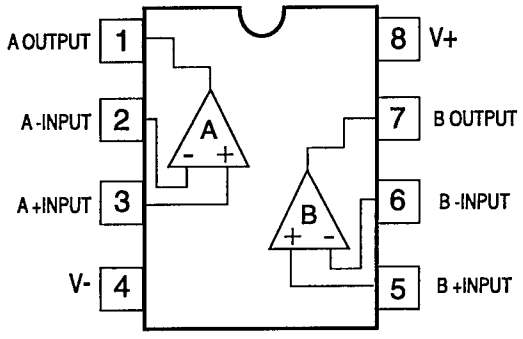
REF. NO.	PART NO.	DESCRIPTION	QTY
Capacitors			
C1	CP1434	CAP. CERAMIC 2700.00 pF ±10% 100V	1
C2, 3, 4	CP1426	CAP. CERAMIC 0.10 µF ±20% 50V	3
C19	CP1565	CAP. ALUM EL. 22 µF ±20% 10V	1
Integrated Circuits			
IC1	IC1002	PWN CONT. MODULE 16 PIN DIP	1
Resistors			
R1	RS1878	RES. F/CHIP 10.00 Ω 5% 1/8W T/R 1206	1
R2	RS1700	RES. F/CHIP 1.00 KΩ 5% 1/8W T/R 1206 PKG.	1
R3	RS1733	RES. F/CHIP 510.00 Ω 5% 1/8W T/R 1206 PKG.	1
R4	RS1724	RES. F/CHIP 6.80 KΩ 5% 1/8W T/R 1206 PKG.	1
R5	RS1702	RES. F/CHIP 100.00 KΩ 5% 1/8W T/R 1206 PKG.	1
R6	RS170	RES. F/CHIP 4.70 KΩ 5% 1/8W T/R 1206 PKG.	1
R7	RS1783	RES. F/CHIP 12.00 KΩ 5% 1/8W 1206 T/R	1
R8	RS1703	RES. F/CHIP 2.20 KΩ 5% 1/8W T/R 1206 PKG.	1
R9, 11	RS1701	RES. F/CHIP 10.00 KΩ 5% 1/8W T/R 1206 PKG.	2
R10	RS1709	RES. F/CHIP 680.00 Ω 5% 1/8W T/R 1206 PKG.	1
R12, 13	RS1826	RES. F/CHIP 27.00 Ω 5% 1/8W T/R 1206	2
R14	RS1711	RES. F/CHIP 220.00 Ω 5% 1/8W T/R 1206 PKG.	1
R15	RS1877	RES. F/CHIP 4.30 KΩ 5% 1/8W T/R 1206	1
J1	RS1779	RES. F/CHIP 0.0 Ω 5% 1/8W 1206 T/R	1
Transistors			
Q1	TR1010	PNP SIGN RXT2907A TO-92 T/R	1
Q2	TR1063	NPN SIGN RXT2222A TO-92	1

Integrated Circuit Diagrams

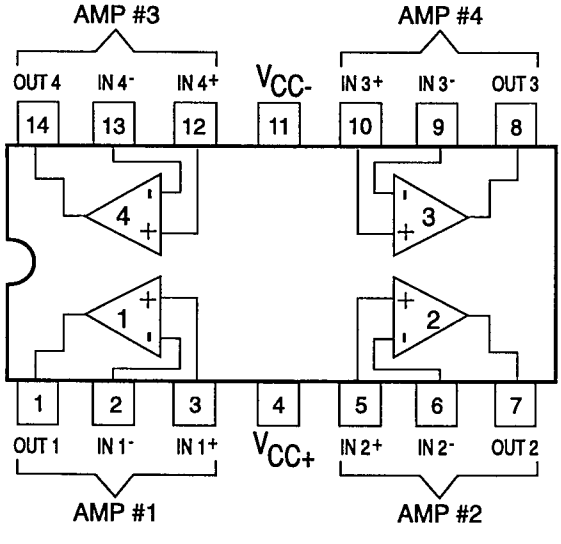
IC1002 (TL494) PWM IC



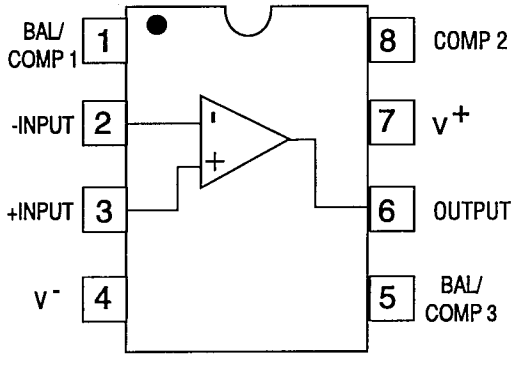
IC1175 (NJM5532), IC1041 (TL072) DUAL OP-AMP



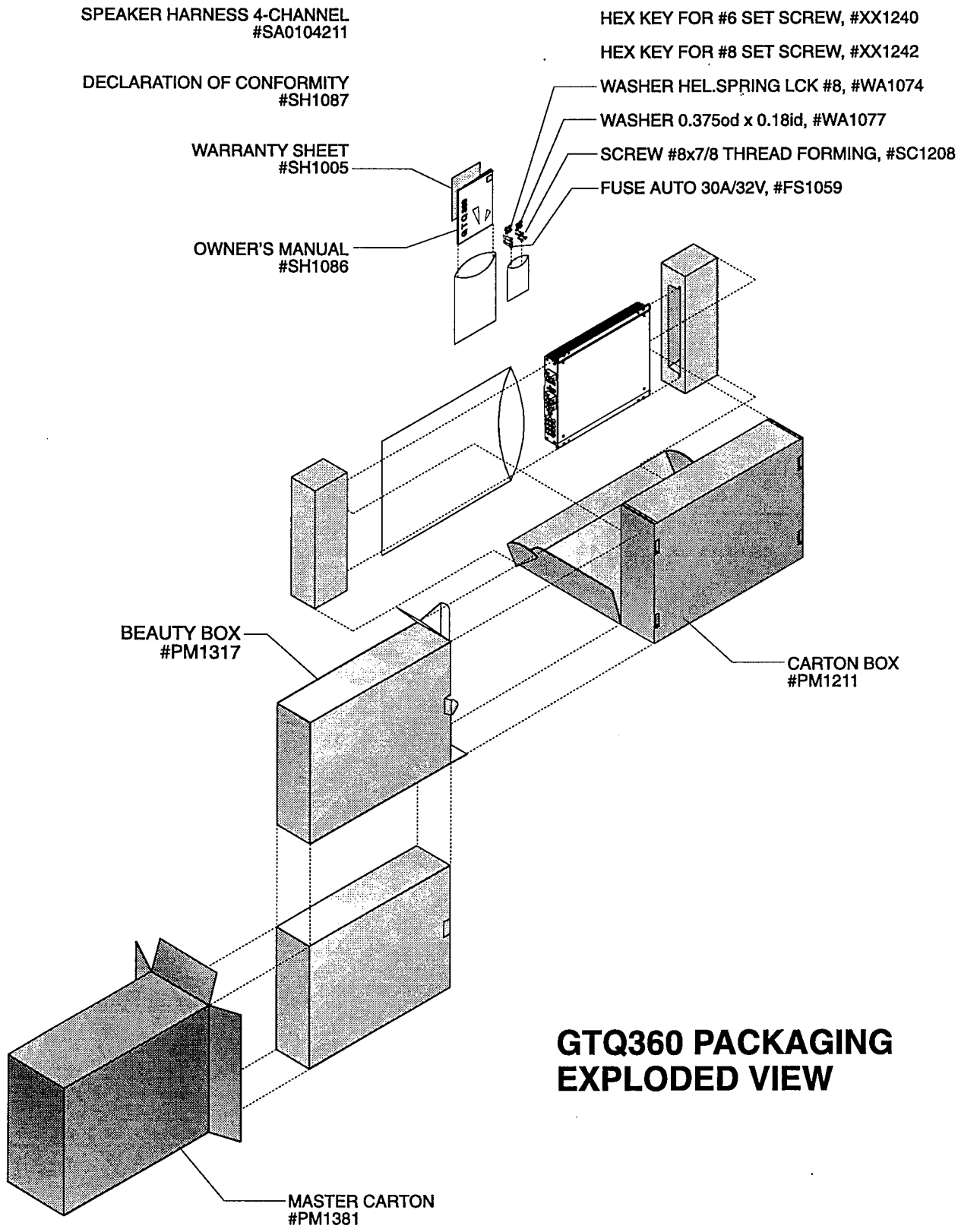
IC1162 & IC1052 (TL074) QUAD OP-AMP



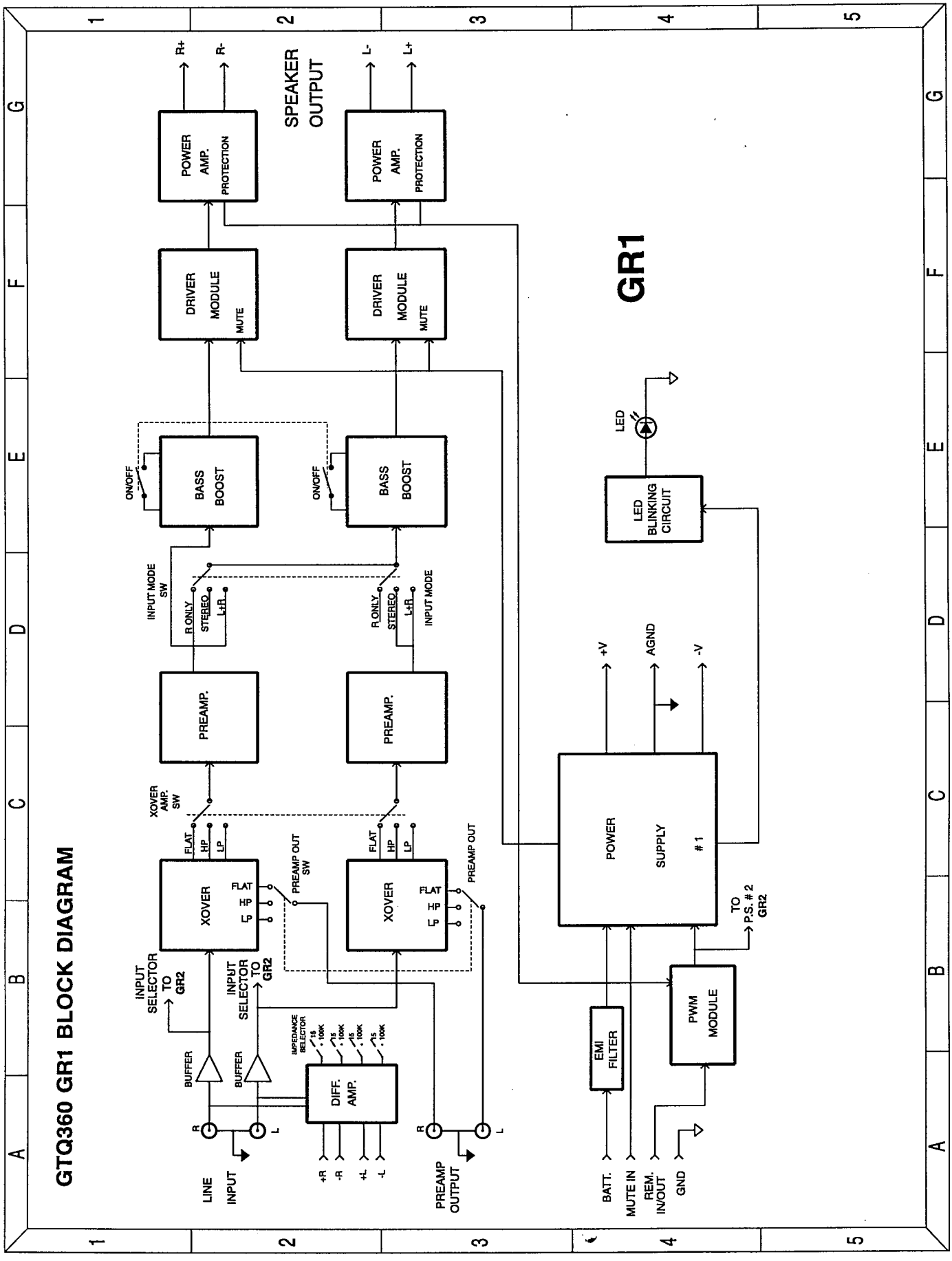
IC1040 (NJM318) OP-AMP



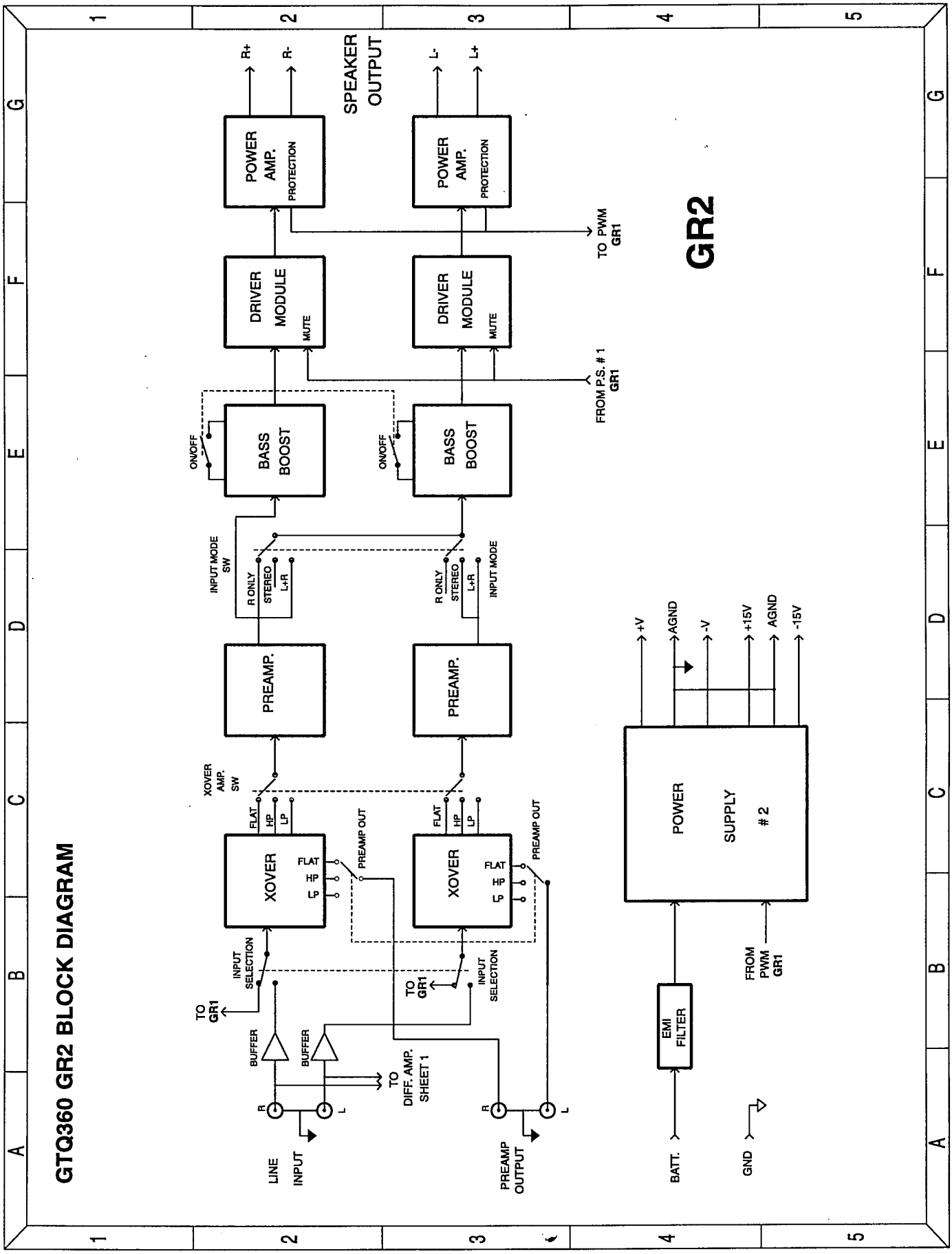
Packaging Exploded View



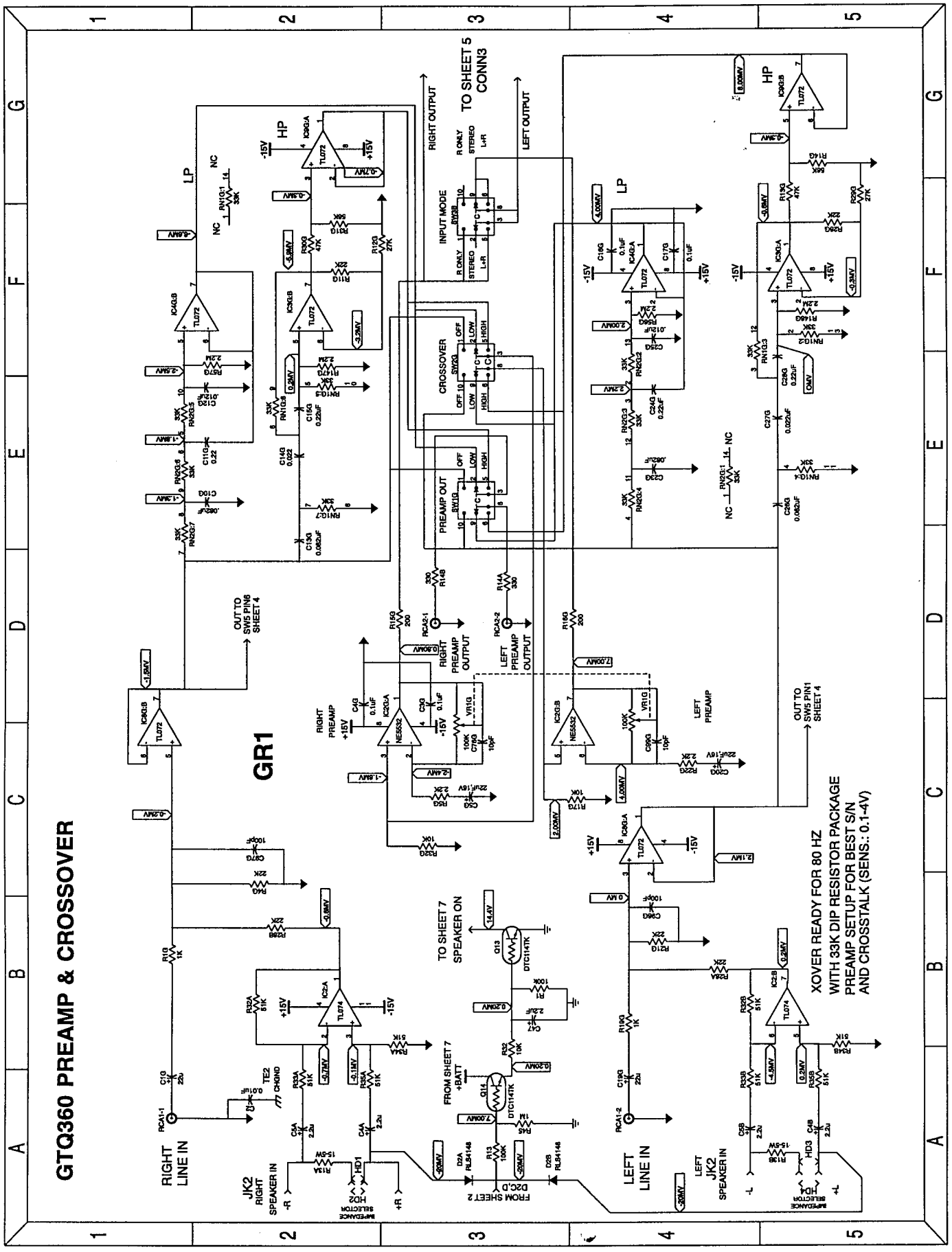
GTQ360 GR1 Block Diagram (sheet 1)



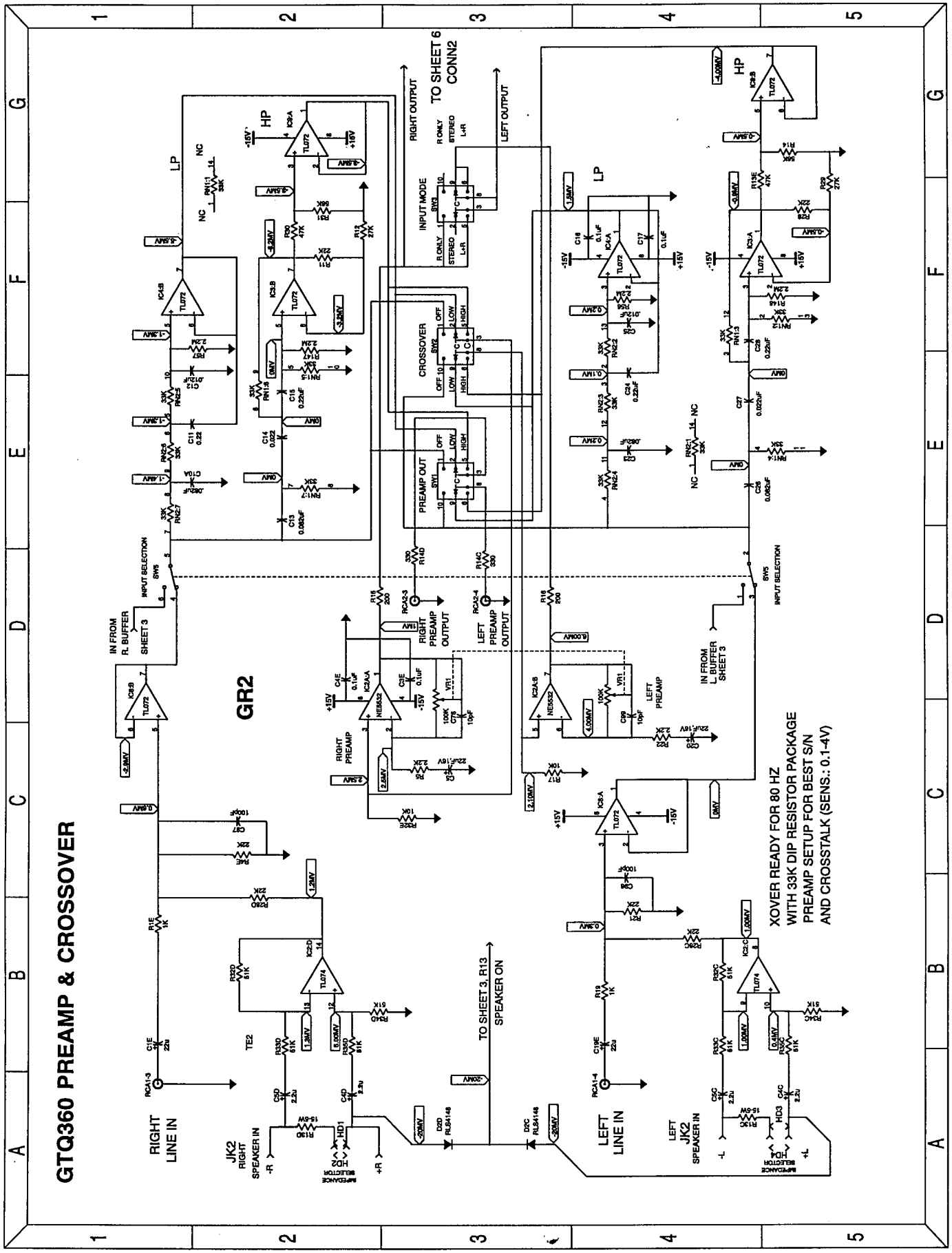
GTQ360 GR2 Block Diagram (sheet 2)



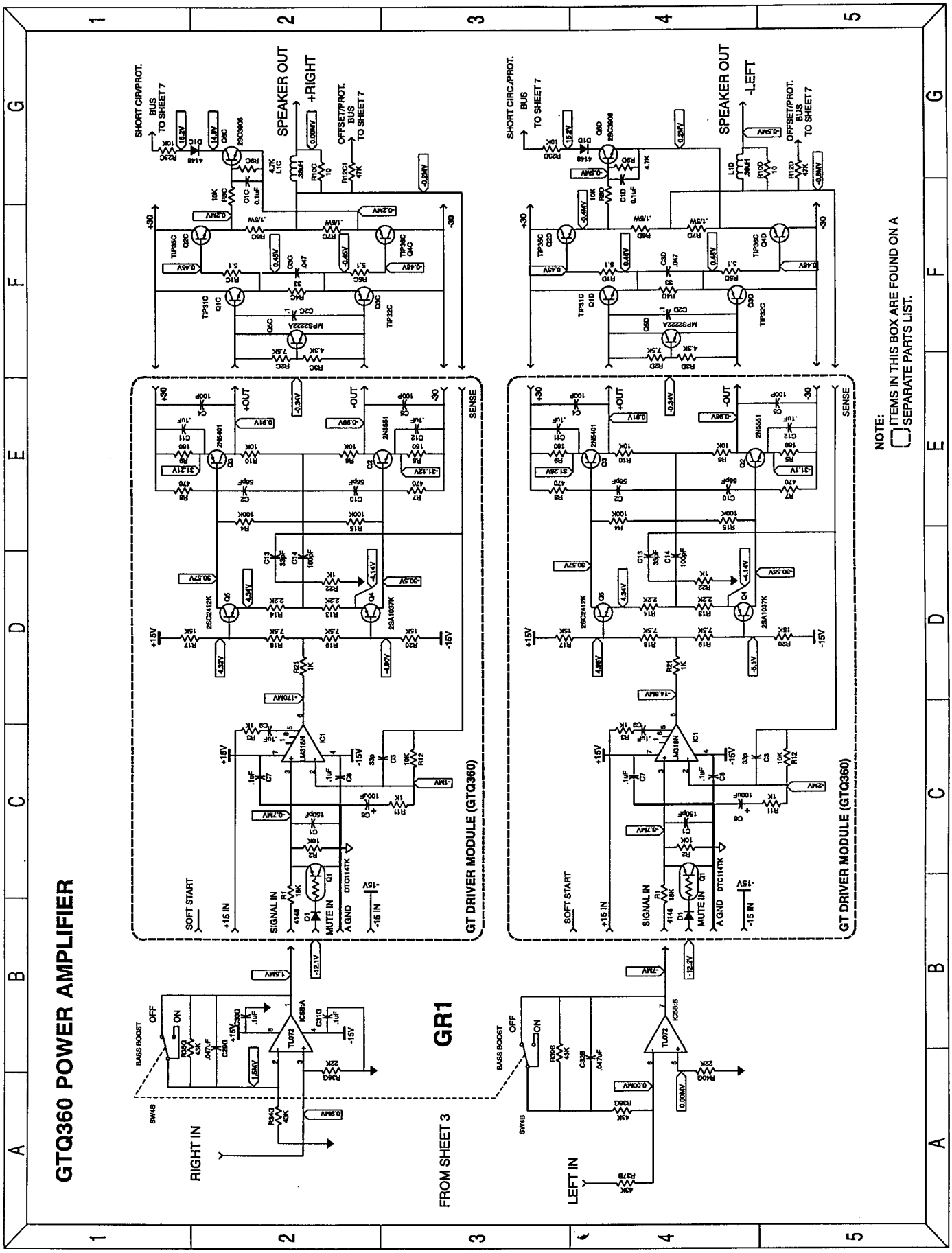
GTQ360 GR1 Preamp & Crossover (sheet 3)



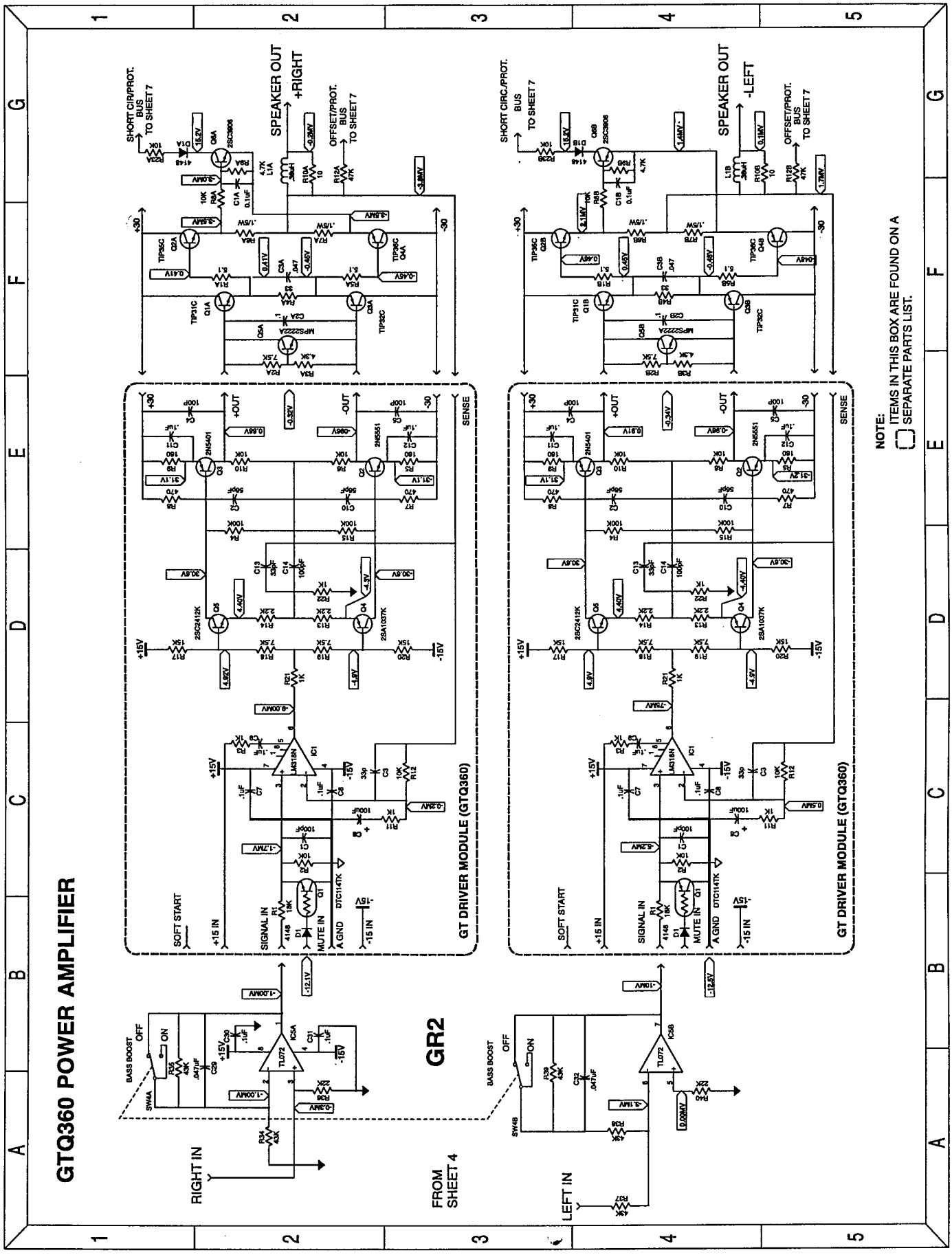
GTQ360 GR2 Preamp & Crossover (sheet 4)



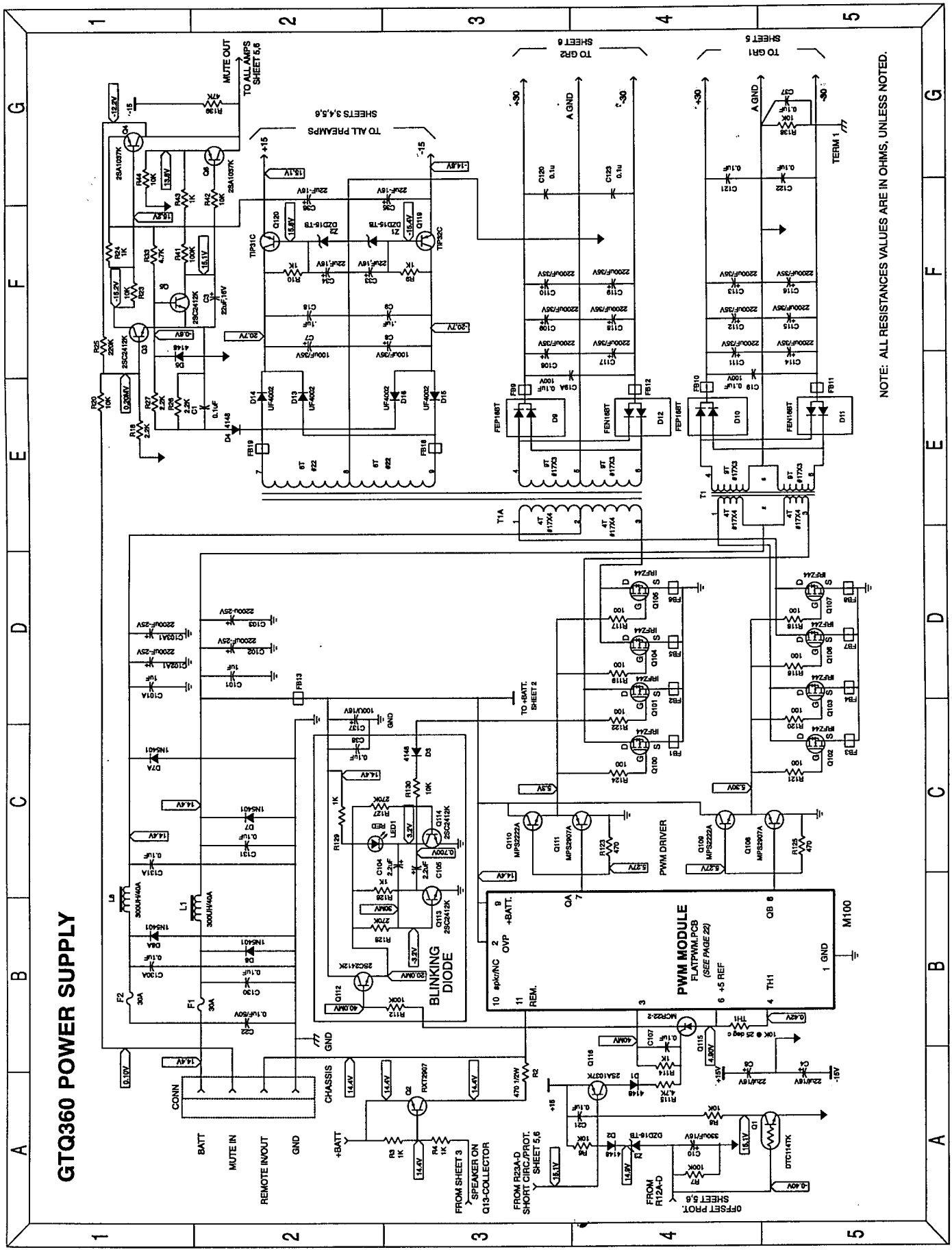
GTQ360 GR1 Power Amplifier (sheet 5)



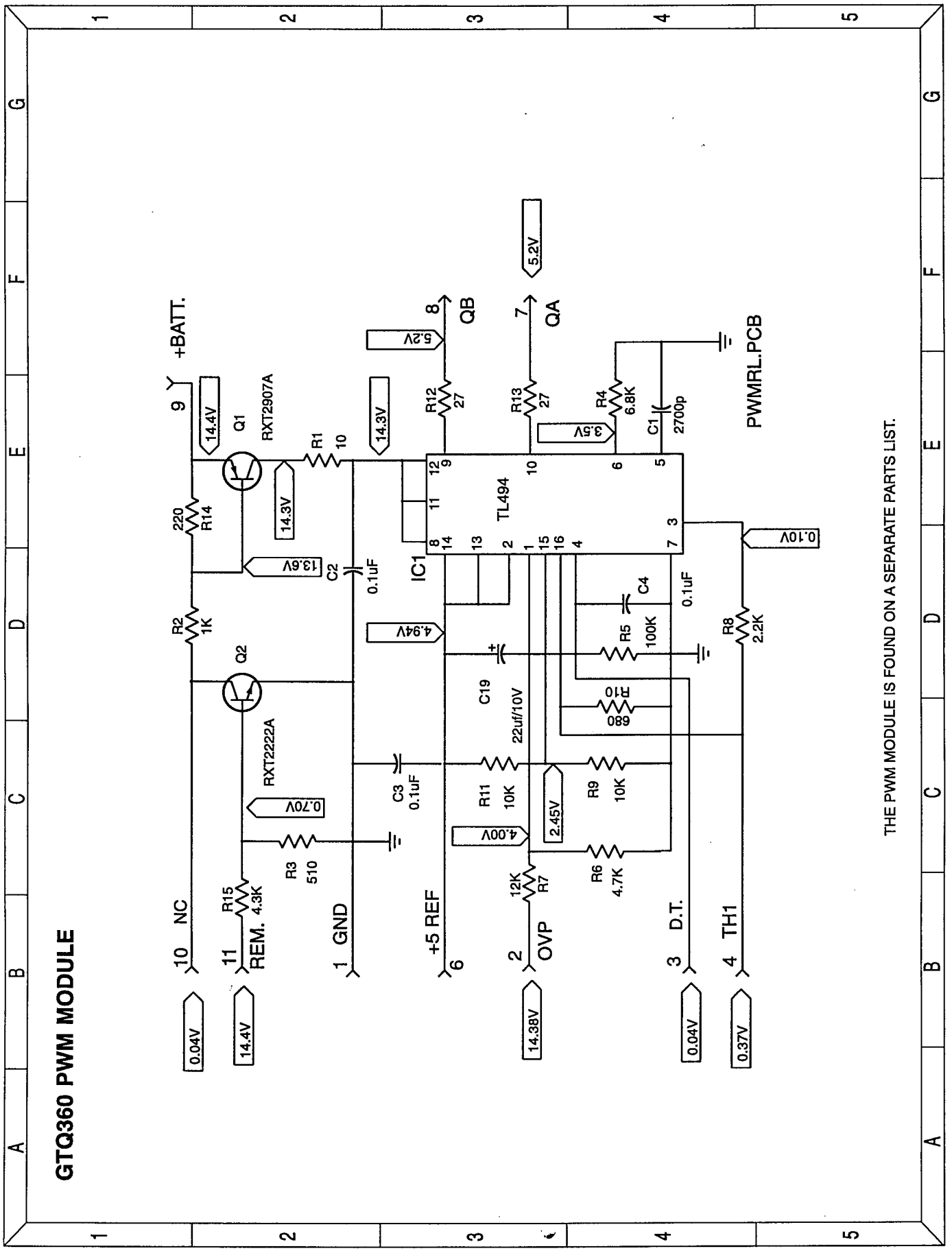
GTQ360 GR2 Power Amplifier (sheet 6)



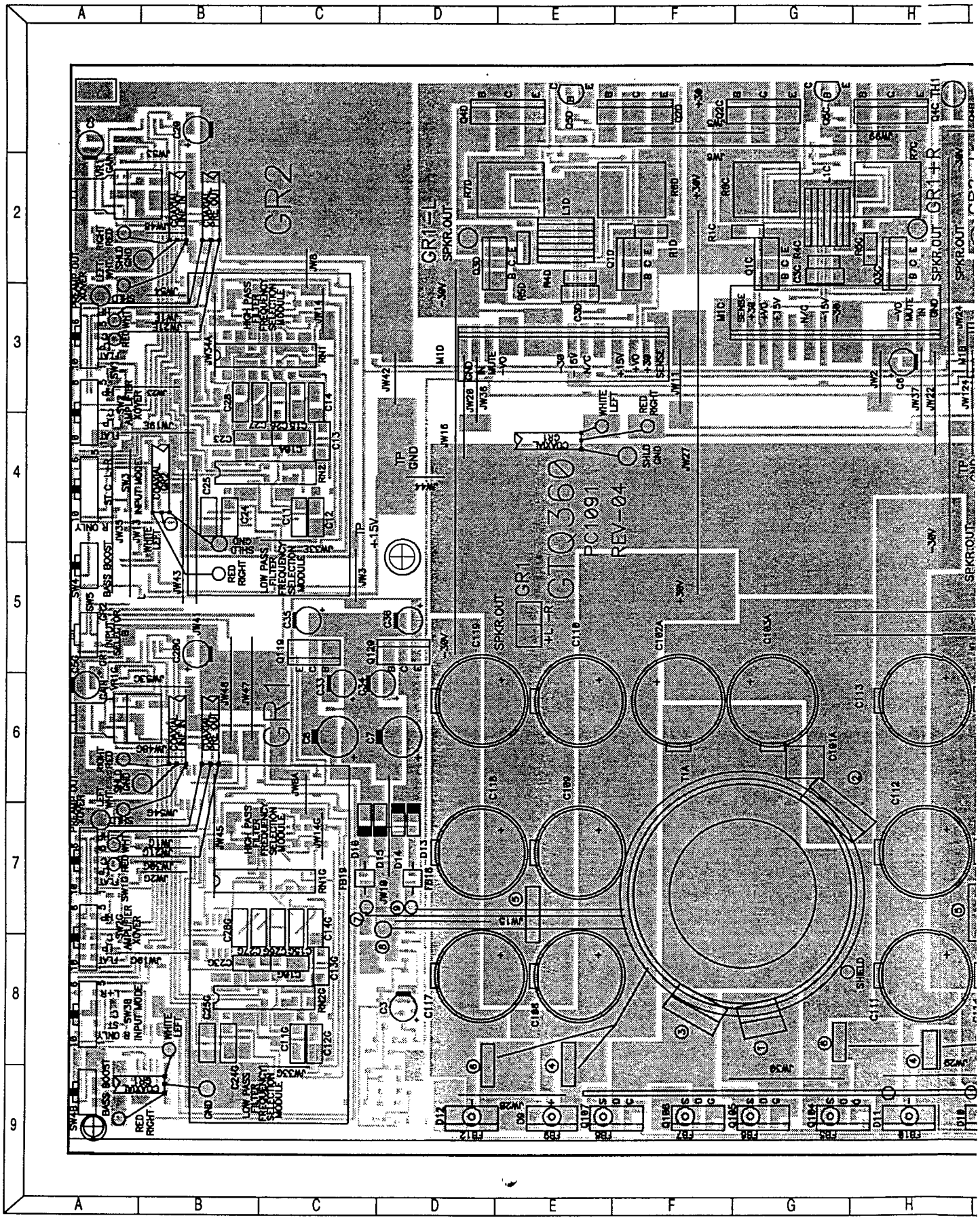
GTQ360 Power Supply (sheet 7)



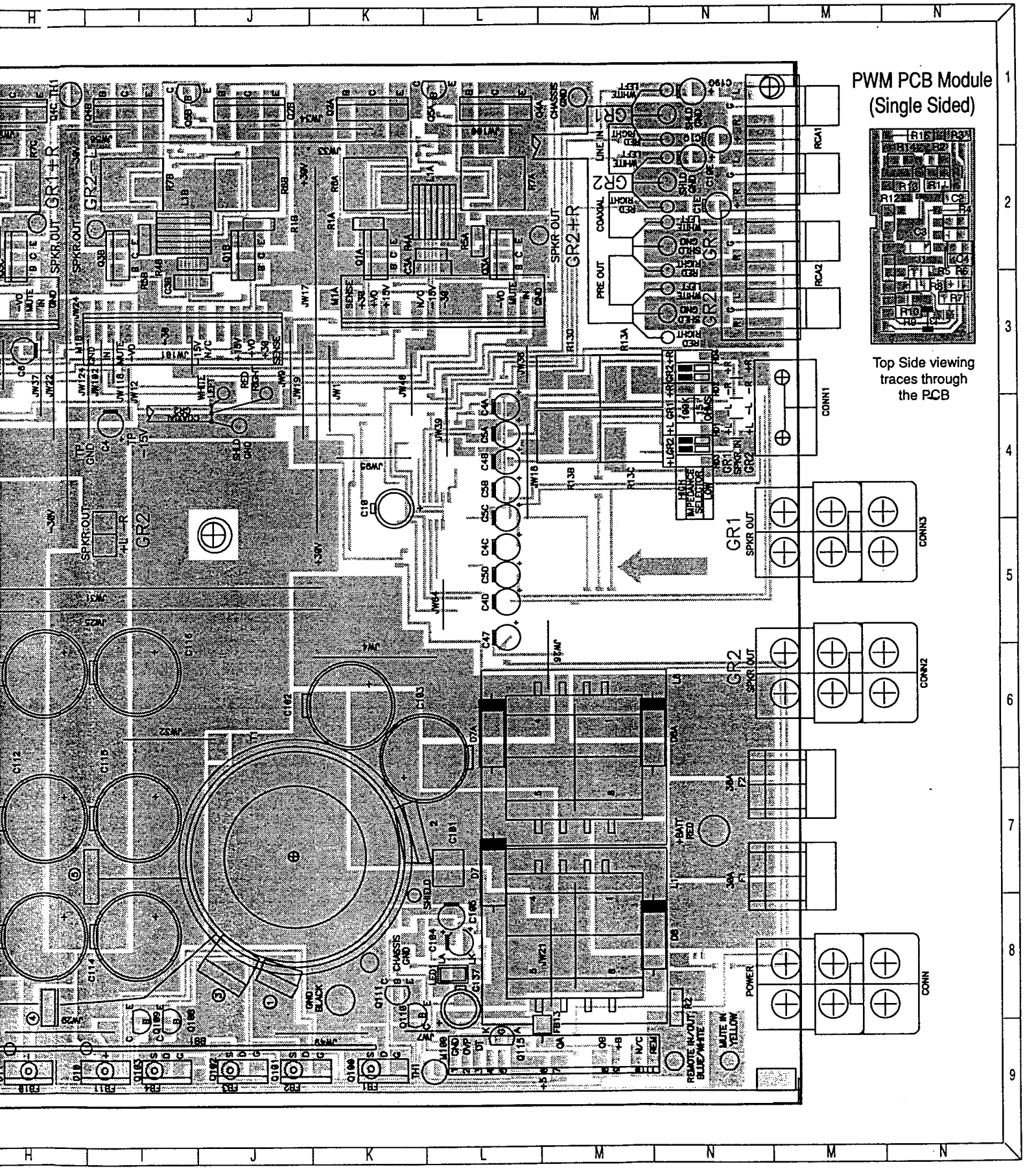
GTQ360 PWM Module (sheet 8)



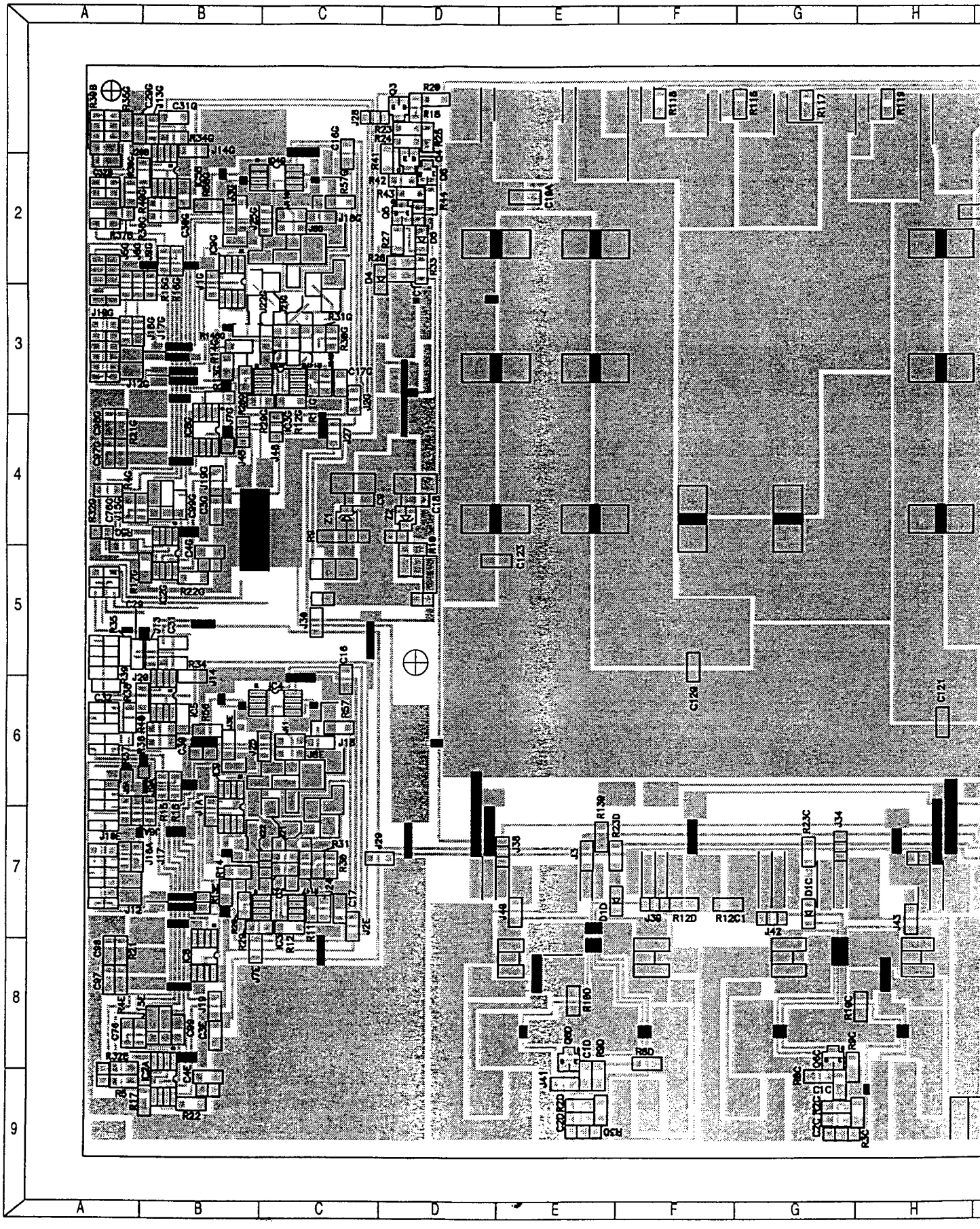
GTQ306 PRINTED CIR



TED CIRCUIT BOARD (TOP VIEW)



GTQ306 PRINTED CIRCU



D CIRCUIT BOARD (BOTTOM VIEW)